

Introducing the use of a semi-structured video diary room to investigate students' learning experiences during an outdoor adventure education groupwork skills course

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Running Head: VIDEO DIARY ROOM DURING GROUPWORK SKILLS COURSE

Introducing the use of a Semi-Structured Video Diary Room to Investigate Students' Learning
Experiences during an Outdoor Adventure Education Groupwork Skills Course

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Abstract

Outdoor adventure education courses are used in higher education to develop transferable skills such as groupwork and problem-solving skills. There is a need for exploratory investigation into students' perceptions of this experience. This study aimed to develop an innovative qualitative data collection method, and to use it to explore students' perceived learning processes and developmental outcomes when taking part in an outdoor groupwork skills course. Participants (n = 40) were undergraduate engineering students who were taking part in the 3 day residential course as part of their degree course. Students' experiences were captured whilst immersed in the course, using a semi-structured video diary room. Participants entered the diary room at different time points throughout the course and responded to open-ended questions. Following a thematic analysis, students were found to arrive on the course with mixed feelings towards groupwork and expected learning outcomes. Activities were enjoyable yet challenging, revealing students' weaknesses and demanding a range of skills and coping methods. The outdoor environment added novelty, risk and natural consequences. Students reported developing a range of skills in groupwork, adaptability, persistence, planning, problem-solving, time-management, communication, leadership, cooperation, group reflection and team spirit, as well as benefits to physical activity, self-confidence, self-awareness, peer and staff relationships and internationalisation. These findings provide a base for future investigation into the long-term impact on student development and skill transfer. The semi-structured video diary room yielded rich data, contributing to the literature by offering a simple, yet effective, qualitative research method that can be implemented in a variety of contexts.

**Introducing the use of a Semi-Structured Video Diary Room to Investigate Students' Learning
Experiences during an Outdoor Adventure Education Groupwork Skills Course**

Developing transferable skills in groupwork, problem-solving, task management and leadership can enhance student success during higher education (Prichard, Bizo, & Stratford, 2006). Graduate employers often value these skills over technical knowledge and degree classifications (Branine, 2008; CBI, 2009), although they are not always sufficiently developed in graduates (Athiyaman, 2001; Bennett, 2002; CBI, 2011). Universities have been criticised for focusing on academic ability and didactic teaching methods, leaving the development of emotional and behavioural skills to chance (Buller & McEvoy, 1990; Roberts, 2009). In response, some institutions provide outdoor adventure education (OAE) courses with the aim of developing these transferable skills (Buller, McEvoy, & Cragun, 1995; Elkin, 1990; Steiner, Arthur, & Beech, 2008). OAE involves small groups placed in a wilderness setting to complete group problem-solving activities that require intense group interaction and facilitation (Hattie, Marsh, Neill, & Richards, 1997).

In higher education, OAE has been shown to improve decision making, communication, group cohesion, self-awareness, social support, self-confidence, resilience, leadership and interpersonal skills (Breunig, Connell, & Young, 2010; Ewert & Yoshino, 2011; Gass, Garvey, & Sugerman, 2003; Kass & Grandzol, 2011; Mazany, Francis, & Sumich, 1997; Sibthorp, 2003). Although these findings are promising, there are number of limitations within this literature.

Firstly, research includes long *wilderness programs* lasting several weeks. This type of OAE usually involves expeditions (e.g., sailing and mountain climbing) with unstructured learning processes and outcomes (Mazany et al., 1997). However, due to financial and time constraints, institutions often provide more time efficient *outdoor-centred* courses lasting two to five days (Steiner et al., 2008; Wagner, Baldwin, & Roland, 1991). Students typically stay at an outdoor pursuits centre and take part in structured group problem-solving activities (e.g., ropes courses and raft building) aimed to develop specific interpersonal and task management skills (Steiner et al., 2008). Less research has focused on outdoor-centred courses in higher education and, as these courses tend to be shorter and more structured, findings from wilderness programs may not generalise.

Secondly, research has focused on the effects of OAE on intact groups. For example, students reported an increase in their groups' communication and decision making ability following a 4 day course (Mazany et al., 1997). Whilst valuable, evaluations should also address whether individuals develop more transferable skills benefitting them in the future, beyond their current group.

Finally, studies are limited by the use of questionnaires measuring a narrow range of course outcomes. Retrospective recall within questionnaires is also subject to recall bias, often leading to inaccurate accounts of an experience (Tanur, 1994). Consequently, these assessment methods may have restricted the scope of investigation to what the researcher expects to find, rather than exploring the experience more broadly, through the eyes of the participant. As a result, the full range of course outcomes, and the processes students go through to reach these outcomes, may not be revealed. Qualitative methodology should provide this richer, broader and less restrained understanding of the experience (Howitt, 2010).

The Present Study

This study investigated undergraduate students' learning experiences during a 3 day outdoor-centred, groupwork skills course. Whilst this course is employed to develop undergraduate and postgraduate students' groupwork skills across a range of disciplines, including arts and law and the life, environmental, physical and social sciences, this study focuses on its use in engineering. The aim was to understand students' perceptions of the experience and the range of course outcomes, while students were immersed in the course. To achieve this aim, we developed an innovative qualitative measurement tool, namely a semi-structured video diary room.

Video Diary Room

Inspired by reality television programs, video diary rooms have been used within educational, health and corporate sectors to evaluate learning experiences (Poole, 2007), conduct service evaluations (NHS North West, 2010), and evaluate staff training and gather customer feedback (Cliff Productions, 2012). A video diary room involves momentarily taking participants out of an experience, and into a private space, to reflect verbally on that experience in front of a video camera. This approach overcomes difficulties people face when expressing themselves through written diaries (Punch, 2002). However, video diary rooms have not been widely used as a qualitative method in scientific research. To the authors' knowledge, only two peer-reviewed publications have previously implemented a form of video diary room methodology.

Noyes (2004) used a video diary room, alongside face-to-face interviews, to investigate children's learning dispositions. The diary room offered an increased depth and freedom of speech and less reliance on the rapport between researcher and participant. A video diary room method was also used by Buchwald, Schantz-Larsen, and Delmar (2009) to investigate children's experiences during various life-changing situations. Participants were each given a video camera and asked to record their own entries over a period of time. Similar to the approach used by Noyes, participants were allowed the freedom to discuss anything within a broad theme that was given to them before entries commenced. Buchwald and colleagues considered the video entries to be a

“useful supplement to more conventional methods... capable of eliciting data that would not otherwise be obtained” (p.12).

Despite these strengths, both studies highlighted limitations with their methods, ranging from practical issues such as ensuring entries were made at critical time points, to issues that may have compromised the credibility and trustworthiness of the results. For example, participants avoided entries during negative experiences and the pre-planned nature of the entries allowed participants time to consider what they felt would be an appropriate response, increasing the likelihood of social desirability bias. In addition, without having questions for participants to follow during entries or an interviewer present, discussion went off track and resulted in large amounts of irrelevant responses (e.g., playing up to the camera) unrelated to the question addressed by the study.

In contrast, the present study used semi-structured questioning, similar to that employed in more conventional qualitative techniques. This approach allows a researcher to direct responses to an area of interest, whilst still giving the respondent flexibility to construct their personal view of an experience (Smith, 2009). Additionally, the present study invited different participants to give diary room entries at various time points and during different observed experiences, thus ensuring spontaneity and variety in responses. Both Noyes (2004) and Buchwald et al. (2009) followed the same participants over time and found entries to increase in depth as participants became more comfortable in front of the camera. It is of interest as to whether a single participant entry approach will still lead to rich data. Finally, as Noyes and Buchwald used a diary room method with children, this study explored whether students in higher education displayed the same openness when sharing their experiences in front of a camera.

In summary, the aim of the present study was to explore the learning experiences of higher education students taking part in a 3 day groupwork skills course, using a semi-structured video diary room.

Method

Participants

Twenty nine participants were recruited from a population of 100 Mechanical Engineering (BSc, year three) undergraduate students, who were taking part in a short OAE course. An additional 11 participants were recruited from a population of 106 Electronic, Electrical and Computer Engineering (BSc, year two) undergraduate students, who were also taking part in OAE, resulting in a total of 40 participants (mean age = 20.55 (SD = 1.09) years). The majority were male ($n = 32$), and were a mixture of home/EU ($n = 22$) and international ($n = 18$) students; about half ($n = 21$) spoke English as their first language. All of the students were

scheduled to take part in a group project module when returning to university following OAE. However, before OAE, students reported limited groupwork experience and had not received any formal groupwork skills training within their degree course. Approval for conducting the study was granted by the University's Ethics Committee.

Outdoor-centred Course

The 3 day residential course was held at a University-owned outdoor pursuits centre in the North West, UK. The course aims to develop transferable skills in groupwork, communication and group problem-solving. Iterations of the course were attended by 30 to 36 students, who were randomly organised into groups of 6 to 8. These groups participated in outdoor problem-solving activities throughout each day. The activities were facilitated by trained instructors who observed the groups' progress and led regular reflective discussions. Activities progressed from 30 minute 'ice breakers', such as reaching a marker across a rough terrain whilst blindfolded, to more complex activities, such as raft building and ropes courses. All activities required the group to work together to complete objectives. In addition, they were issued with a group housekeeping rota, and there was time off in the evenings to relax and socialise.

Semi-Structured Video Diary Room

A semi-structured video diary room was set up in a private yurt. The room contained a digital video camera (Sony DCR-SX33) positioned in front of a chair, with question cards laid out on a table (Figure 1). Decorative lighting and coloured screening created a more enjoyable and relaxed atmosphere.

(Figure 1 & Table 1)

Diary room questions were independently developed by four researchers, and were refined following group discussions. The final questions (Table 1) were independently reviewed for quality and clarity by an expert qualitative researcher. Questions were deliberately broad and open-ended to ensure participants were not led to a particular answer and required more than a "yes/no" response (Smith, 2009). Responses were guided towards students' perceptions of the course experience, as well as their personal development and perceived benefits beyond the immediate group dynamics. There were three sets of questions, each corresponding to a specific time point during the course. A warm-up question was used to relax participants and encourage a greater depth in answers. Researchers viewed the initial entries for each time point to ensure the questions were understood as intended; all entries were later included in the analysis as no such misunderstandings were observed.

Procedure

Students were invited in person by researchers to give entries. Purposive sampling was used to ensure the deepest possible understanding of the experience (Hastie & Hay, 2012), whereby the researchers invited a range of participants to represent the diversity observed within the wider population; for example, those who displayed varied course experiences (e.g., enjoyment, success/failure), apparent personality types (e.g., extroversion and introversion), and demographics. Forty-six students were invited into the diary room, with six (13%) declining to take part due to an unwillingness to be recorded. This refusal did not appear biased towards students with any particular characteristics.

Each participant was given an information sheet, consent form, and demographic questionnaire. Before being left alone in the room, participants were instructed to read each question aloud, take their time, answer in as much depth as deemed necessary, and to leave out or revisit questions if needed. After making their entry, participants were asked to inform the researcher if they were unhappy with their comments, or if they would like to make any additions; neither event occurred.

Analysis

Forty diary room entries were collected over four iterations of the course; 12 on arrival, 16 during, and 12 at the end of the course. The duration of entries ranged from 63 sec to 10 min 49 sec ($M = 4$ min 8 sec, $SD = 2$ min 21 sec), resulting in a total of 2 hr and 45 min of recording.

An inductive thematic analysis was used because of the exploratory nature of the study. This approach provides a rich and descriptive account of patterns within the data set, with identified themes being strongly linked to the data itself, rather than fitting to a pre-existing theory or framework (Braun & Clarke, 2006; Howitt, 2010). A semantic, realist approach was taken, whereby participants' experiences and personal meanings were analysed using an explicit interpretation of what was said, rather than looking for underlying meanings and structures (Braun & Clarke, 2006).

To increase systemisation and transparency, guidelines provided by Braun and Clarke (2006) and Howitt (2010) were followed. Step 1 involved data familiarisation. Although professional transcription services were used, the lead researcher watched, read, checked, and re-read all entries. In Step 2, initial coding was carried out using qualitative analysis software (Nvivo 9). Each sentence, or small section of text, was given a descriptive code one level of abstraction away from the data. No new codes were created in the final transcripts, suggesting saturation was approached. Themes were identified as the process naturally evolved into Step 3, involving the sorting of codes into themes. Tentative themes were further organised into higher and lower level

themes. In Step 4, themes were reviewed to ensure there was enough supporting data and both *internal homogeneity* and *external heterogeneity* existed (Patton, 2003). This process resulted in themes being removed, merged or divided. In Step 5, names and definitions were given to each theme. Theme names were selected based on words from research, theory, and terms used by participants (Hastie & Glotova, 2012).

To improve credibility and trustworthiness, a second researcher independently coded 15% of the data, before themes were discussed and refined until consensual validation was reached. Finally, the entire data set was presented to two expert researchers who were independent of the analytic process; more refinements were made at this stage before being agreed.

Results

The following results are organised into two distinct but related areas of interest - the *course experience* (e.g., a collection of themes describing the process students went through during OAE) and the *course outcomes* (e.g., a collection of themes describing the perceived learning outcomes that resulted from the experience) (see additional online information for the full set of themes and definitions).

The Course Experience

Students described their feelings towards the course and their learning experiences in great depth. Five first level themes were discussed, including students' preconceptions about the course, their expected course outcomes, meaningful elements of the course, how they overcame challenges, and their affective and instrumental attitudes towards the course. These five themes together comprised 21 second level themes and 52 third level themes (Table 2). In the following sections, sub-headings are used to identify each of the first level themes and the associated second level themes (italicised) are described along with the third level themes and examples of supporting quotes.

(Table 2)

Individual preconceptions. On arrival, students brought with them a number of different attitudes and feelings towards their participation in the course. These preconceptions included different types of *motivation for attending*. Some students attended simply because it was a compulsory part of their degree course, whereas other students attended in preparation for future project work. Students displayed *positive affect* by conveying excitement towards the course. However, students had mixed *preferences for groupwork*, with some responding positively and others stating a preference for independent working. Students had received prior *information from peers* that influenced their preconceptions, including what to expect from the activities. Some had previous experiences of OAE: "I've done something similar to this in school... I'm pretty sure I know what's going on

and what sort of tasks we'll be doing.", whilst others had none. Students also expressed *concerns* relating to personal safety, the environment, physical exertion, being amongst others and a lack of pre-course information. For example, "My main concern would be whether I get on with my team mates because if I didn't, I'd find it quite a hard, hard couple of days." Other students had no concerns.

Outcome expectations. Students expectations ranged from high, "We have got a lot to learn on this course," to low, "To be honest I don't think I'll learn much". Many expected to develop *groupwork skills*, such as cooperation, leadership and communication. Students also expected the course to provide *enjoyment*, and lead to *improved peer relationships*. Finally, the course was expected to *benefit future behaviour*, at university and in future employment.

Key elements of the experience. During the course, students repeatedly discussed elements of the experience that stood out to them as being particularly meaningful and/or contributing to the course outcomes. The activities themselves were often described as *interesting and enjoyable*. *Challenging* elements of the experience were reflected in five third level themes: (a) physically demanding, (b) intellectually demanding, (c) language barriers, (d) frustrating, and (e) sometimes unachievable, allowing teams to experience failure.

Another key element of the experience described how activities *revealed weaknesses*, both individually (e.g., "...it was a bit slow, but that was due to two or three people not being particularly confident.") and as a group (e.g., "...no one was really listening to each other"). A fourth key element was the *environment*; some found the novelty memorable and others described a sense of risk, which was exciting and helped to foster a supportive group environment as this student explains:

The prospect of falling with a harness on you... Individuals would have to be looked after by the rest of the team, which was good because you have to rely on your team mates to actually stop you from falling.

The environment also provided natural consequences, for example, "...we think and make a boat, but it doesn't work, it didn't work because we didn't work well and we didn't think well so we fall in the sea".

The final element of the course experience was the contribution of *time outside of activities*. This student explains the importance of having duty rotas:

If we were not given a duty rota or anything, the place would rapidly descend into just rubbish and chaos... it is good to start thinking about what is necessary in a business or an environment like that in order to keep things running smoothly...

273 Whilst another student illustrates the importance of free-time outside of structured activities, “I think the most
274 meaningful experience has been last night’s social... the whole of our team went along. We all had a really good
275 laugh just sharing experiences...”

276 **Overcoming the challenge.** To overcome challenges posed by the course, students used interpersonal
277 and intrapersonal coping methods. *Interpersonal support* was gained from interacting with others and comprised
278 seven third level themes: (a) groupwork (e.g., “My teammates, they are quite skilled in these kinds of things
279 [outdoor pursuit activities]... I learned a lot from them”), (b) leadership (e.g., “Because I have done [raft
280 building] before I proposed idea and we went with it and it worked really well”), (c) communication (e.g., “We
281 did take it in turns to, to voice opinions and ideas in order to overcome each obstacle”), (d) role allocation (e.g.,
282 “We chose people who maybe had much better balance to carry the water¹ and the other two to support.”), (e)
283 trust (e.g., “You are blind folded and you have to trust the other team member to climb up the wall.”), (f)
284 humour (e.g., “A bit of humour has certainly helped me to overcome a few things.”), and (g) instructor support
285 (e.g., “The people that are taking us are really, really friendly, really helpful, quite insightful about stuff. They
286 realise where certain weakness are and strengths are in the group”).

287 *Intrapersonal support*, was gained from within the self and comprised five third level themes: (a)
288 application of previous knowledge (e.g., “Some of my sailing knowledge about knots came in handy.”), (b)
289 emotional control (e.g., “...I have had to keep my head cool.”), (c) improvisation (e.g., “Improvisation happened
290 quite often, especially because we were trying to do things quickly...”), (d) reflection (e.g., “Reflection upon
291 how things have gone in the past have helped me to look to difficulties in the future...”), and (e) planning (e.g.,
292 “Trying to kind of foresee difficulties and overcoming them before they get to them”).

293 **Reflection on the experience.** On the final day, students reflected on the course as a whole. Many felt
294 they had a *positive and memorable experience*, represented by quotes such as, “It was a good experience and
295 memories will stay forever.” and, “Well, in a nut shell, the best experience of my life”. The experience also
296 *exceeded expectations* (e.g., “Honestly I thought it was going to be an inconvenience but, I liked it... it was
297 good”) and provided a *sense of achievement* (e.g., ...we got out there and it worked... that was really great to see.
298 I really, really enjoyed that). Finally, the end of course feelings included *thoughts on transfer*, with students
299 anticipating how the experience might be useful in the future, “...I’m in a group with these people and if nothing
300 else, I have a project to do with them in March.” and, “It is good to start thinking about what is necessary in a
301 business”.

302 _____
303 ¹ In one activity, students were required to carry containers of water across an obstacle course without spilling.

304 The Course Outcomes

305 Students discussed a broad range of outcomes as a result of attending the course. The analysis revealed
 306 23 third level themes, which were categorised into seven second level themes, and further categorised into two
 307 first level themes of *interpersonal* and *intrapersonal* outcomes (Table 3). The following sections describe the
 308 interpersonal and intrapersonal outcomes in turn, with their corresponding second level themes italicised.

309 (Table 3)

310 **Interpersonal.** Interpersonal outcomes involve how an individual interacts with others. This first level
 311 theme included three second level themes: *groupwork*, *improved relationships* and *internationalisation*. By the
 312 end of the course, students displayed an increased awareness of the value of *groupwork* and reported developing
 313 seven different *groupwork* skills: (a) communication, which involved an increase in communication skills (e.g.,
 314 “Number one definitely, it improves my teamwork, my communication skills with other people”), listening
 315 skills (e.g., “I learnt to listen to others, not always listen to myself.”) and students’ understanding of the
 316 importance of effective communication, for example:

317 It has become very clear that some people do not like to voice their opinions... I think a team does need
 318 people like that so that they can come up with the ideas but they still need someone to put them across.
 319 (b) leadership skills, which included having a better understanding of the qualities associated with a successful
 320 leader (e.g., “You are more likely to work for somebody if you are enjoying their company...”), and developing
 321 one’s leadership style (e.g., “I feel that I can be a bit overbearing...”); (c) team spirit, with students expressing
 322 that they learnt how to foster a supportive team environment through trust, self-sacrifice and motivating others;
 323 (d) group reflection, comprising an increased ability to reflect ‘in action’, where it was “useful to step back and
 324 look at a situation sometimes”, as well as reflecting ‘on action’, for example, “...being able to reflect on what
 325 we’ve done, brainstorm what would have been better”; (e) understanding of team roles, with one student
 326 learning that “...every organisation is a special structure, just like a successful group needs some leaders and
 327 thinkers and doers, as well as the carers”; (f) cooperation, involving the ability to compromise and work with
 328 others cohesively. One student stated “[the course] taught me to be a bit more accepting, understanding sort of
 329 like appreciating what other people’s views are”, whereas another learnt “... not to undervalue anyone”; and (g)
 330 functioning of intact groups, which describes the perceived benefits to groups who were returning to university
 331 to continue working together.

332 Students described *improved relationships*, which included peer group relationships, where new
 333 friendships were developed between students; one student said, “Before coming here, I had about ten friends,

twelve friends from the school. Now I almost know everyone by name”, whilst another described increased social support, “I meet some new friends. When I’m in school, I meet some difficulties or problems, I can ask them for help”. Improved relationships also included those between student and staff, where one student said, “They really care for us and are here to help us... Our relationship was just entering the lecture, taking some information, getting out. Now I know them personally, they are very good guys”.

The final second level theme within the interpersonal outcomes was *internationalisation*, defined as promoting, valuing and learning to work effectively in multicultural environments. This theme benefitted home and international students alike and included internationalising groupwork, involving a change in cultural beliefs and norms regarding groupwork. An overseas student explained, “In China I usually have fewer time, or fewer chance to cooperate with others. We usually study by ourselves... I have found that teamwork is very important”. Other third level themes included overcoming multilingual challenges and increased cross-cultural integration; this student spoke of both:

There is some people on this course that have been in every lecture I have sat in for two years that I have never heard them utter a single syllable and I don’t really know if they speak English. And in the last two days I have had to get them to communicate with me somehow and some of their English is really poor but, I’ve had to make it work... I think there is segregation in our year and it’s wrong and it would be nice to break it down a bit more.

Intrapersonal. Students reported a range of intrapersonal outcomes, which were defined as outcomes to do with the self. This first level theme included four second level themes: *mental toughness*, *task management skills*, *self-awareness* and *physical activity*. Within the theme *mental toughness*, students spoke of an increased capacity to deal with challenges, including (a) persistence in the face of difficulty (e.g., “I learnt to never give up. I know no matter what happens in academic work also in life and maybe work in future, we will meet a lot of difficulties but to make sure we never give up”); (b) increased self-confidence (e.g., “I become more confident about myself. I usually speak to myself that you can do it... because you have the ability”); (c) learning to be brave despite low self-confidence (e.g., “There is just one girl in our team... if I can’t do it our team will fail... So I think being brave is the most important thing I learnt”); and (d) adaptability, (e.g., “We should be adaptable to any situation”).

Increased *task management skills* included improved planning skills and understanding of the importance of planning. One student said, “We just dived into challenges... we did not use planning time efficiently, so, don’t be afraid to use all the time and all the resources you have got”. Students also developed problem-solving

(e.g., “I learnt how to think by myself and use my knowledge in practice to solve my problem.”), and time management skills (e.g., “...time management... really struck through... It taught us to keep an eye on the time”).

The next intrapersonal outcome was increased *self-awareness*, where students became more aware of their own strengths and weaknesses and highlighted areas requiring continued improvement. For example, “I find it very difficult not to snap at people... I wasn’t aware of that... Probably rein that in a bit” and, “I don’t listen to anyone, I just do what I am thinking”.

Finally, intrapersonal outcomes included benefits to *physical activity*. The course provided an immediate bout of exercise, with some students having gone “a long time without exercise”, as well as teaching outdoor recreation skills such as personal survival, knots and map reading. Students also reported an increased motivation to take part in new sports, for example, “I really liked it, maybe I will continue the rowing in the future” and to increase future physical activity; for example, “I think after I go back from [the course] I will not be lazy anymore”.

Discussion

The aim of the study was to investigate students’ learning experiences during a 3 day outdoor-centred groupwork skills course. The depth of student response to the semi-structured video diary room revealed a complex range of themes. Divided into two separate thematic maps, students discussed the learning process they experienced during OAE (*the course experience*) as well as the range of outcomes resulting from their experience (*the course outcomes*). The following discussion is organised around each of the resulting themes in turn.

To begin with, students arrived at the centre with varied motivations for attending; some valued groupwork and hoped to develop their interpersonal skills, whilst others were unsure why they were attending and displayed negative attitudes towards groupwork. This variation may be because the course is embedded into the degree course, rather than an optional addition. Whilst some students expected to develop groupwork skills, many saw the course as a social event. Overall, the range of expected course outcomes on arrival, were far narrower than the subsequent outcomes described in later entries. This disparity could represent an ‘unconscious incompetence’ state in many students, which is described in the conscious competence learning model as being unaware of a lack of knowledge or expertise within a given area (Adams, 2012; Flower, 1999). Despite the engineering discipline placing a particularly high demand on the development of groupwork skills in graduates, many students were unaware of the different areas of interpersonal and emotional development considered important in higher education and employment (Athiyaman, 2001; Bennett, 2002; Branine, 2008; Prichard et al.,

2006). By the end of the course however, students appeared to have progressed to the ‘conscious incompetence’ and ‘conscious competence’ stages of the learning model, displaying greater awareness of areas in need of improvement as well as increased competence in these areas. This finding supports the argument that students’ ability to work well in groups is not effectively developed without direct intervention (Prichard et al., 2006), as students appear to have a superficial knowledge of the different interpersonal skills that could be improved. In addition, this finding suggests that the outcomes of OAE discovered in engineering students, may generalise to other disciplines. In a discipline that places less emphasis on the importance of groupwork skills, students would still be likely to begin OAE with similar beliefs and understanding to those in the present study. However, further research should include other disciplines to confirm this expectation.

This pre-course lack of awareness and negative attitude towards groupwork is also an important area for course improvement. Students’ pre-course attitudes towards groupwork have previously been found to significantly relate to post-course measures of perceived group effectiveness, supportiveness, and continuation of groupwork when returning to university (Shivers-Blackwell, 2004). Further, according to behavioural change theories such as the theory of planned behaviour (Ajzen, 1991), the likelihood of an individual changing a behaviour (e.g., groupwork) is predicted by the individuals’ intention to change this behaviour. Intention is in turn predicted by attitude, perceived social norms, and perceived behavioural control over the behaviour. Therefore, the development of behavioural skills could be enhanced by targeting these areas prior to students attending a course.

Other key areas of the experience were the activities, which students found interesting and enjoyable, yet challenging, revealing individual and group weaknesses. Students were motivated by perceived risk and natural consequences to failure, resulting from the outdoor environment. These findings support previous studies where participants have recalled the unfamiliar and challenging outdoor environment as a vital part of the learning experience (D’Amato & Krasny, 2011; McKenzie, 2003). It is believed that this type of environment provides optimal levels of arousal for learning to occur, as students are alert and engaged (Priest & Gass, 2005). The environment also promotes transformative learning, encouraging students to think about things in a different way and seek support from those around them (Mezirow, 2000; O’Sullivan, 2002). In the present study, the challenges faced required students to work together and utilise a range of coping methods, many of which were reflected in the subsequent learning outcomes.

In addition to the activities, time outside of activities was also found to be important. Some students found the house keeping rotas and living arrangements just as effective in developing groupwork skills as the

activities themselves. The free-time was also important for socialising and bonding, allowing students to practice their interpersonal skills and explore new social networks. This finding is particularly interesting as some researchers have suggested that to save travel costs, group problem-solving courses could be conducted indoors on campus and achieve similar outcomes (Broderick & Pearce, 2001). However, this study highlights the importance of a novel and unpredictable outdoor environment and the time spent living and socialising together outside of the structured activities. To maximise the social benefits, organisers should be encouraged to randomly assign students both to their small groups and to different iterations of a course, rather than allowing students to sign up in friendship groups.

Students reported developing key skills, such as adaptability, communication, groupwork, leadership, self-confidence, persistence, time management, problem-solving and planning, all of which appear repeatedly in the literature as crucial for both success in higher education and subsequent employment (Bennett, 2002; Prichard et al., 2006; Roberts, 2009; Stevens & Campion, 1994). Not only did students report developing their ability across these areas, many demonstrated increased awareness of what effective groupwork involves and the value in working with others. Although some of these outcomes have been found in previous literature (for reviews, see Ewert & McAvoy, 2000; Gillis & Speelman, 2008; Hattie et al., 1997; Williams, Graham, & Baker, 2003), this study is the first to demonstrate such a range of outcomes following a short, outdoor-centred course used in higher education.

Another interesting outcome was internationalisation, where students learnt to work in multicultural groups and overcome the associated language barriers. This development is vital in an increasingly globalised economy, with workplaces requiring graduates who can navigate language and cultural differences and work effectively in multicultural groups (Roberts, 2009). This study is the first to demonstrate the potential for OAE in providing this type of development. Future research should further explore these multicultural benefits, including whether outcomes persist on return to university, and whether different nationalities or cultural groups experience and benefit from OAE in different ways.

In summary, this study provides support for OAE in higher education, demonstrating a wide range of positive outcomes, achieved during a short outdoor-centred course. In addition, the groupwork skills developed were not specific to the intact groups taking part and instead demonstrate individual development that may benefit students when entering various group environments. However, while this study outlines a range of outcomes that may potentially transfer to future experiences, further research is required to explore the long-term impact on student development and employment.

As a secondary objective, this study developed a qualitative method of data collection that successfully captured students learning experiences whilst immersed in a course. Students were willing to participate and appeared comfortable when providing open and in-depth responses. The varied responses indicated that the questions enabled students to discuss their experience openly, whilst ensuring data remained rich and focused on the research question. This semi-structured method extends previous unstructured diary room methodologies (e.g., Buchwald et al., 2009; Noyes, 2004), as a more efficient method of data collection and analysis, as well as demonstrating its effectiveness when used in higher education.

The semi-structured video diary room also adheres to recommendations commonly suggested for improving the quality of traditional interview techniques. For example, Hastie and Hay (2012) recommend that interviewers would benefit from listening more and talking less, being more tolerant of silences (allowing the participant time to think), making fewer unnecessary interruptions, and avoiding judgemental reactions. The space and time students were given to consider the questions may have also acted as an additional learning aid, encouraging reflective learning. However, a limitation of the interviewee being alone was an inability to follow-up answers that required clarification or further probing. To overcome this limitation, diary room questions must be carefully worded to avoid any possible misinterpretations and entries could be followed up using face to face interviewing.

Further research should validate the semi-structured video diary room in different settings. Follow-up interviews could be used to discover how participants found using a diary room and the impact this method may have on their learning experience. Further, a semi-structured video diary room could be implemented in a case study design to assess skill transfer, where an individual's learning experience is followed before, during and after a training course.

Overall, this study has demonstrated that outdoor-centred courses offer a unique environment for students to develop interpersonal and intrapersonal skills. The range of course outcomes displayed provides a valuable base for future research into the quantification of these outcomes, the influence of individual differences, and the issue of long-term transfer. In doing so, this study has also developed a novel qualitative method. Whilst requiring further validation, the semi-structured video diary room has been shown to be highly effective in collecting rich and informative data.

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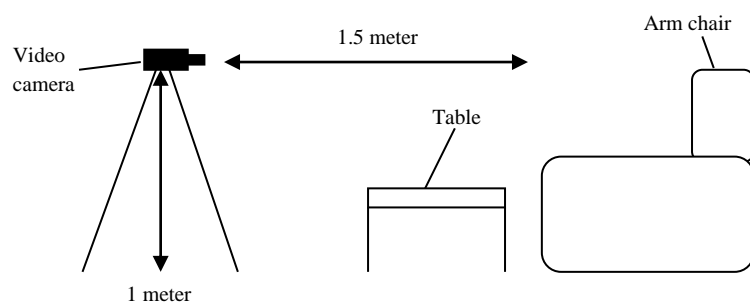


Fig. 1 The layout of the semi-structured video diary room

589 Table 1

590 *Semi-structured video diary room questions*

Time point	Question
On arrival	<i>Tell us a bit about yourself (your name, where you're from, what you like doing, why you're here)</i> What do you hope to learn on the course? Do you have any concerns about the course?
During day 2	<i>Tell us a bit about your day (what you've been doing)</i> What have you learnt so far on the course? What has been your most meaningful experience here so far? What things have helped you to overcome any difficulties?
End of day 3	<i>Tell us a bit about your experience at [the outdoor pursuits centre]</i> What have you learnt about yourself? What have you learnt that you could use during your academic work or future employment? What was your greatest achievement? What do you feel you will take away from this experience?

591 *Note.* Warm-up questions indicated in italics

592

Table 2

A thematic analysis of the groupwork skills course experience

First level themes	Second level themes	Third level themes
Individual preconceptions	Motivation for attending	Compulsory Preparation for future academic work Improving groupwork skills Positive affect Enjoys groupwork Preference for independent learning What to expect Positive views Previous experience No previous experience Personal safety Environment Physical exertion Being amongst others Lack of pre-course information No concerns
	Positive affect	
	Preferences for groupwork	
	Information from peers	
	Past experiences	
Outcome expectations	Concerns	
	Groupwork skills	Cooperation Leadership Communication Enjoyment Improved peer relationships University Employment
	Enjoyment	
	Improved peer relationships	
	Benefit to future behaviour	
Key elements of the experience	Interesting and enjoyable activities	Interesting and enjoyable activities Physically demanding Intellectually demanding Language barriers Frustrating Sometimes unachievable Individual weaknesses Group weaknesses Novel Perceived risk Natural consequences Duty rotas Free-time
	Challenging	
	Revealed weaknesses	
	Environment	
	Time outside of activities	
Overcoming the challenge	Interpersonal support	Groupwork Leadership Communication Role allocation Trust Humour Instructor support Application of previous knowledge Emotional control Improvisation Reflection Planning
	Intrapersonal support	
Reflection on the experience	Positive and memorable	Positive and memorable Exceeded expectations Sense of achievement Thoughts on transfer
	Exceeded expectations	
	Sense of achievement	
	Thoughts on transfer	

Note. See the *online supplementary materials* for a more detailed thematic map including definitions and example quotes

599 Table 3

600 *A thematic analysis of the groupwork skills course outcomes*

First level themes	Second level themes	Third level themes
Interpersonal	Groupwork	Communication
		Leadership
		Team spirit
		Group reflection
		Team roles
		Cooperation
		Functioning of intact groups
		Peer group
		Student and staff
		Internationalising groupwork
Intrapersonal	Improved relationships	Overcoming multilingual challenges
	Internationalisation	Reduced cultural divide
		Persistence
	Mental toughness	Self-confidence
		Bravery
	Task management skills	Adaptability
		Planning
	Self-awareness	Problem-solving
		Time management
	Physical activity	Self-awareness
		Exercise
		Outdoor recreation skills
		Motivation

601 *Note.* See the *online supplementary materials* for a more detailed thematic map including definitions and
602 example quotes

603